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United States Patent [19][11] **Patent Number:** **5,376,947****Kuroda**[45] **Date of Patent:** **Dec. 27, 1994****[54] TOUCH-TYPE INPUT TERMINAL
APPARATUS FOR POINTING OR
SPECIFYING POSITION ON DISPLAY
DEVICE**[75] **Inventor:** **Kazuo Kuroda**, Tokorozawa, Japan[73] **Assignee:** **Pioneer Electronic Corporation**,
Tokyo, Japan[21] **Appl. No.:** **956,970**[22] **Filed:** **Oct. 6, 1992****[30] Foreign Application Priority Data**

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[51] **Int. Cl.⁵** **G09G 5/08**[52] **U.S. Cl.** **345/173**[58] **Field of Search** 340/706, 709, 712;
178/18, 19; 345/173-178, 104, 179**[56] References Cited****U.S. PATENT DOCUMENTS**

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Macpeak & Seas**[57] ABSTRACT**

An input terminal apparatus for inputting, to a display device which has a screen and displays input information on the screen, positional information indicating a position of the input information displayed on the screen, is provided with: a touch sensor device including a sensor area having sensing points which number is less than the number of pixels of the screen, for detecting a touch condition on the sensor area per each of the sensing points; and a detection result outputting device, which is coupled to the touch sensor device, for sampling the detected touch condition periodically at a predetermined time interval and outputting detection data indicating the detected and sampled touch condition as a detection result. The input terminal apparatus is also provided with: a memory device for storing the detection data outputted from the detection result outputting device; and a calculating device for calculating a vector quantity of a moving amount on the screen corresponding to a moving amount of the position touched on the sensor area, on the basis of the detection data stored in the memory device, and outputting movement data indicating the calculated vector quantity to the display device.

9 Claims, 4 Drawing Sheets